

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	
09/305,121	05/04/99	GUNAPALA	S	06816/065002
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			BAUMEISTER, B	
ART UNIT		PAPER NUMBER		
2815		3		
DATE MAILED:		12/09/99		

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

## Office Action Summary

Application No.

09/305,121

Applicant(s)

Gunapala et al.

Examiner

William Baumeister

Group Art Unit

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Responsive to communication(s) filed on May 4, 1999.

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 1 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

### Disposition of Claims

Claim(s) 1-6, 9-26, and 29-35 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) \_\_\_\_\_ is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims 1-6, 9-26, and 29-35 are subject to restriction or election requirement.

### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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## **DETAILED ACTION**

### *Election/Restriction*

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

Species I: a dual-band QWIP array wherein each photodetector element is composed of a first stack of a barrier-well superlattice group which detects primarily a first wavelength and a second stack of a barrier-well superlattice group which detects primarily a second wavelength, wherein the first and second stacks form a double-stack, one stack adjacent the other, wherein none of the stacks of the double stack are shorted, and further wherein:

Sub-Species IA: the wells of one stack are composed of GaAs and the wells of the other stack are composed of InGaAs;

Sub-Species IB: the wells of one stack are composed of GaAs and the wells of the other stack are composed of  $\text{Al}_y\text{Ga}_{1-y}\text{As}$ ;

Species II: a dual-band QWIP array wherein each photodetector element is composed of a first stack of a barrier-well superlattice group which detects primarily a first wavelength and a second stack of a barrier-well superlattice group which detects primarily a second wavelength, wherein the first and second stacks form a double-stack, one stack adjacent the other, wherein particular stacks of the double stack

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array are shorted in alternating rows to make them inoperative, and further  
wherein:

Sub-Species IIA: the wells of one stack are composed of GaAs and the wells of the  
other stack are composed of InGaAs;

Sub-Species IIB: the wells of one stack are composed of GaAs and the wells of the  
other stack are composed of  $\text{Al}_y\text{Ga}_{1-y}\text{As}$ ;

Species III: a dual-band QWIP array wherein each photodetector element is composed of an  
superlattice of interlaced wells of differing bandgaps or well depths, wherein:

Sub-Species IIIA: the wells of one bandgap are composed of GaAs and the wells of  
the other bandgap are composed of InGaAs; and

Sub-Species IIIB: the wells of one bandgap are composed of GaAs and the wells of  
the other bandgap are composed of  $\text{Al}_y\text{Ga}_{1-y}\text{As}$ .

Species IV: a dual-band QWIP array which employs a 2-dimensional grating array composed  
of:

Sub-Species IVA: random reflectors; and

Sub-Species IVB: an optimized cross-grating array.

2. Applicant is required under 35 U.S.C. 121 to elect a single disclosed SUB-SPECIES  
from Species I-III AND additionally elect a single disclosed SUB-SPECIES from Species IV

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for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, various claims are generic.

Applicant is advised that a response to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any

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amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

4. For the sake of compact prosecution, the Office takes this opportunity to note that various informalities exist in the specification and will be the basis of future objections upon prosecution on the merits. For example:

- a. FIG. 1 is partially illegible, and FIG. 3A is fully illegible.
- b. Some labels of FIG. 1 do not appear to coincide with the description set forth in the specification. For example, page 5, first full paragraph recites that electrons are promoted from subband 101 to subband 106. However, electrons are depicted as being promoted from subband 1?2 to subband 10? and holes are promoted from subband 102/106(?) to subband 104.
- c. FIG 12 includes a typographical error in the label "MWIR QWIP," setting forth "WMIR QWIP."

Applicant is invited to take this opportunity carefully review the specification and drawings and to correct these and any other minor informalities.

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### INFORMATION ON HOW TO CONTACT THE USPTO

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner, **B. William Baumeister**, whose telephone number is (703) 306-9165. The examiner can normally be reached Monday through Friday, 8:30 a.m. to 5:00 p.m. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

B. William Baumeister

December 6, 1999

  
Jerome Jackson, Jr.  
Primary Examiner